

anther. A little force applied in the right direction will cause this small and somewhat tapering portion of the filament to leave the canal, and the heavy anther is then suspended at the middle by the tip of the filament. By careful manipulation the original position can be restored and the anther is again upright. The release of filament takes place naturally as the two lobes dehisce and separate from each other.

In a very closely related genus, namely *Tulipa*, the stamens are also large, but the anthers remain upright throughout their whole existence. When the tulip stamen matures and the pollen is exposed along the two sutures, the flat anther has a twist in it so that the widest diameter at the tip stands at right angles to that of the base. Owing to its large size, its breadth and narrowness, and peculiar attachment to the filament, the anther may be turned upon its long axis by any slight breeze or by the bodies of visiting insects. This attachment is a long pivot which extends upward in the center of the anther for a distance and is held in place by tough fibres at its tip. So elastic is this tip that the anther may be turned several times upon its long axis before it will become detached from the hard peg-like extremity of the filament.

The structure for facilitating the dispersion of pollen in the tulip anther is not unlike what it would be in the lily if, instead of becoming strictly versatile, the filament tip was continued in its "pocket" and the anther was free to turn upon this upright point.—BYRON D. HALSTED, *Rutgers College*.

The winter leaves of *Corydalis glauca* and *C. flavula*.—Says Curtis (*Bot. Magazine*, 1792) referring to the Linnæan *Fumaria sempervirens*: "The term *sempervirens* originated in the description of it given by Cornutus (*Fumaria siliquosa sempervirens* Cat. Canad. 57 t. 57); the impropriety of calling an annual plant an *evergreen* has appeared to us too glaring to be continued; we have thought the promotion of science required a change in the name, and have therefore altered it to that of *glauca*." When Pursh removed the plant to *Corydalis* he made it *Corydalis glauca*. As an author who places an old species in a new genus is not bound under the canons to retain the old name, it may be in order for those who sympathize with Curtis's reasons for changing the Linnæan name to give it another, for *glauca* is no more characteristic than *sempervirens*. Certainly some forms of *C. aurea*, especially Rocky Mountain forms, are more glaucous than forms of *C. glauca* ever are. If we may change names because they are not in accord with the terms used in describing the plant, how will the list of synonyms swell!

The object of this note is to suggest whether, after all, Cornutus might not have more reason than Curtis supposed for using the term *sempervirens* in connection with this plant. Last January I spent the greater part of a day among the pine-crowned hills of the Allegheny range, near Lewistown in Central Pennsylvania. It had not been much

below the freezing point at night, and the day was a pleasant one for studying the root-leaves of plants—to me an interesting department of phytology. It was a pleasure to discover a new Pennsylvania locality for *Pinus pungens*, but a much greater was furnished by a complete carpet of glaucous green leaves of a *Corydalis*, spread over the moss-covered mass of rotting pine needles under the trees. As the allies of the plant, as known to our botanical grandfathers, died completely down in winter, why should it be wondered at, and made censurable, that such a plant should be dubbed evergreen?

Taking a few plants home and subsequently flowering them, it proved to be *Corydalis flavula* of DC. (*Fumaria flavula* Rafinesque). I have never met *C. glauca* in winter excursions, but its near relationship to this species would justify some faith in Cornutus having seen something similar suggestive of the name.

C. flavula is certainly an annual in the sense of germinating and dying within a twelve month, but in the sense some use the term biennial, that is, getting considerable strength in the autumn after germinating early in the season, and then remaining over to the next to finish its growth and mature, it would not be an annual in Curtis's estimation, nor probably would *C. glauca* be in its native wilds.—THOMAS MEEHAN, *Germanatown, Pennsylvania.*

Pollen mother-cells.—If any person has experienced difficulty in obtaining pollen mother-cells in excellent condition for study, their attention is called to the young anthers of *Negundo aceroides* Moench. Sections of thecae may be easily obtained by cutting across the staminate flowers before they have attained half their full size. When these sections are not too thin the thecae will be found made up of a single whorl or circle of mother-cells, many of which are pear-shaped, due to unequal pressure. The mother-cells in the center of the thecae easily become detached and may be found scattered through the liquid in which the sections are immersed. These loose cells have a strong resemblance to the asci of the *Erysiphææ* (powdery mildews), and the four pollen grains may be found in all stages of development. In the beginning there is only the slightest differentiation of the protoplasm into four indistinct masses. As they become more manifest the arrangement of the four is found inconstant. Sometimes they are placed with their longer diameter parallel like the four nutlets in a borage fruit. In others two are in the same plane and the other two above or below, and at right angles to the first pair. Azorubin is excellent in weak solution for bringing out the young grains more prominently. The pollen grains do not use up the thick mother wall, and leave pits or cavities as they escape, as young seeds in a wax-bean pod.—BYRON D. HALSTED, *Rutgers College.*